VI.—*On Cretaceous Plants from Port McNeill, Vancouver Island.*

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I.—NOTE ON THE GEOLOGY. (*G. M. Dawson.*)

The fossil plants referred to in the following note were obtained at Port McNeill, on the north-east coast of Vancouver Island, in 1885. The precise locality is situated on the north shore of Port McNeill, bearing N. 65° E. (Mag.) from the Eel Reef. The beds here lie at an angle of about ten degrees, or not far from horizontal; and the plants are found in shales or shaly sandstones about five feet above a small seam of coal from one to two inches thick.

The Cretaceous rocks of the northern part of Vancouver Island appear to belong to a basin or deposition-area distinct from that of the Comox and Nanaimo districts to the south, and more closely connected with that of the Queen Charlotte Islands to the north. The best general section of the rocks in question, so far observed, is that in Quatsino Sound, where there seem to be represented the three higher members of the Cretaceous section of the Queen Charlotte Islands, as it exists in the vicinity of Skidegate Inlet. The cretaceous rocks which extend along the north-east coast of Vancouver Island, from Port McNeill to Beaver Harbour, may in part represent the lowest or coal-bearing portion of the Quatsino section. A few fossil plants obtained at Beaver Harbour are Middle Cretaceous, and possibly referable to a horizon near that of the lowest beds at Quatsino. The Port McNeill beds are, so far as stratigraphical evidence exists, probably much later than these; but their stratigraphical position has not been fully determined, and as no fossils but plants have been found in them, these constitute the best evidence as to their precise age at present available. (See Part B, Annual Report Geological Survey of Canada, 1886.)

II.—NOTICE OF THE PLANTS. (*Sir Wm. Dawson.*)

The plants from Port McNeill are almost entirely dicotyledonous leaves, with a few fruits. Large slabs have been procured, some with very perfect specimens of these leaves. There are no ferns or cycads in the collection, and conifers are rare. The latter are limited to fragments of a *Sequoia* of the type of *S. Langsdorffii*, branchlets of *Torreia*, apparently the species *T. densifolia* of a former paper,[1] and two species of *Salisburia*, or Gingko. One of these Gingkos is a beautiful little form, with leaves resembling those of the modern

[1] Trans. Roy. Soc. Can., 1883, Sect. iv. p. 25.

Gingko when less than half grown in early spring. It is near to *S. integrifolia*, Heer, a Jurassic species; but also near to *S. primordialis*, Heer, from the Upper Cretaceous of Greenland. It is, however, probably new.

The exogenous leaves are very numerous, and belong to a number of genera, among which are probably *Ficus*, *Alnus*, *Betula*, *Quercus*, *Diospyros*, *Cinnamomum*, *Ceanothus*, *Populus*, *Salix*, *Proteoides*, *Juglans*, *Rhamnus*, *Aralia*, and possibly several others, evidencing a very rich and varied forest flora of warm temperate aspect.

The material is extensive, and requires so much working out, that it has not yet been fully examined; but it must include at least twenty species of exogenous trees and shrubs.

The facies of the flora, as a whole, is Upper Cretaceous, and several of the species are apparently identical with those found at Nanaimo and elsewhere in the southern basin of Vancouver Island. Others, however, are different. On the whole, the assemblage is of decidedly later type than that of Beaver Harbour, above referred to, and probably somewhat newer than that of Nanaimo, and more resembling the Upper Cretaceous plants found by Richardson at Protection Island. It is certainly more modern than the Dakota group of the United States, and the Dunvegan group of Peace River, and its nearest analogues elsewhere seem to be in the Atané and Patoot series of Greenland, as described by Heer.

The collection will, when fully worked out, add a number of interesting species to the known Cretaceous flora of British Columbia, which will be farther augmented by new species in additional collections of Dr. Dawson, made at the Wellington mine at Nanaimo.